

Appendix 1: US Telecommunications Events and Legislations

<i>Year & Event</i>	<i>Rationale</i>
1885 Bell incorporates as AT&T (American Telephone & Telegraph Company)	Provide protection to company officers
1934 Communication Act, 1934	The Communication Act 1934 established FCC (Federal Communication Commission) to oversee <i>interstate</i> telecommunication services and regulate telecommunication and broadcast industries.
1949 REA (Rural Electrification Act) amended	To provide low-cost loans to Independent who willing to establish telephone services in rural area in America where state legislation guaranteed a positive rate of return to carrier
1968 FCC Carterphone decision	Deregulation of telecommunication industry began with the customer's premises. The Carterphone decision 1968 had the most impact on deregulation of station equipment by the FCC. This decision enabled customers to purchase telephones from Independent retailer. FCC forcing AT&T to allow connection of a carterphone to telephone lines at residence. In other words, AT&T must permit the use of CPE (customer provided equipment) that are not owned by the LEC (local exchange carrier).
1969 MCI ruling by FCC	Long distance telephone service was the second area to be deregulated in telecommunication. Deregulation began with the MCI ruling of 1969 by the FCC. The lawsuit forced AT&T to allow customers of MCI (microwave communication inc.) to use local telephone lines to access to MCI's private line network. Deregulation of long distance service meant a loss of toll sharing revenue to the LECs. However, local phone rates were raised to offset the loss of this revenue.
1971 Specialized common carrier	FCC widen this decision and allow any common carrier to provide private-line service, called Specialized Common Carrier Ruling, 1971 whereby this services can only be used by the private organization to help their private network.
1975 MCI decision	MCI began to offer long distance service to general public. However, FCC ordered MCI to restrict its services to private line business. Finally, MCI sued and appealed. The FCC ruling was reversed.
1984 MFJ takes effect	The 1984 agreement was called Modified Final Judgment (MFJ). This judgment modified and replaced 1956 Final Judgment. The major provisions of 1984 MFJ were : <ul style="list-style-type: none"> • AT&T was forced to deregulate long distance services and divest itself of the 23 Bell Operation Companies (BOCs)/ Baby Bells. These were the local Bell Telephone companies. Before 1984 MFJ, there were 23 BOCs that were subsidiaries of AT&T. Thus, AT&T was left with the long distance facilities and BOCs were left with local service facilities. Now BOCs are separate companies and AT&T can no longer force them to buy solely from Western Electric. They can choose to buy from whichever manufacturers who providing equipment at a lower price.

	<ul style="list-style-type: none"> • Calls that originated and terminated within a small geographic area called LATA (intraLATA calls) must be carried by LEC (Local Exchange Carrier) and call between LATAs (interLATA calls) must be carried by IEC (Inter-exchange Carrier). IECs are common carriers that provide long distance telephone service. The major IECs are AT&T, MCI, Sprint, LDI etc. • In 1984 the MFJ also ordered regional BOCs to provide equal access to toll for all IECs by 1987. BOCs had to replace electromechanical toll offices with computer controlled switching systems and they have to provide POP locations⁴³. When the customer makes an inter-LATA call, the BOC will connect the caller to their preferred IEC as their long distance service provider. This is called PIC (Preferred inter-exchange carrier) and LEC will program its central office to assign the preferred IEC to that customer's telephone number.
1987 Equal access (1984 MFJ)	RBOCs must provide equal access.
1996 Telecommunications Reform Act 1996	Replaced 1984 MFJ and open both areas to competition. It allows either type of call to be carried by either LEC or an IEC. The 1996 Telecommunication Reform Act overrides Computer Inquiry II ⁴⁴ and allows LECs to reenter the CPE market. The LECs have merged with these separate subsidiaries company. Therefore, CPE can also be sold by LECs.

⁴³ POP is called Point of Presence which is the local exchange carrier and inter-exchange carrier meet each other.

⁴⁴ The Computer Inquiry II was mandated that local exchange carrier could not provide station equipment. In other words, Computer Inquiry II prevented LECs from selling CPE (Customer provided equipment).

Appendix 2: Telecommunication Policy in United Kingdom – Chronology of Events

- 1981 British Telecommunications Act 1981 split BT from Post Office and begins liberalization.
- 1982 Mercury is licensed as a national network operator in competition with BT.
- 1983 BT and Mercury duopoly policy announced.
- 1984 Telecommunications Act establishes a new regulatory framework, OFTEL, and RPI-3 price control on inland calls.
BT is privatized with 50.2 per cent of its shares sold.
- 1985 OFTEL rules on the terms of interconnection between BT's and Mercury's network.
- 1986 BT continues to rebalance call charges.
- 1987 BT's quality of services comes under criticism.
- 1988 BT accepts contractual liability for poor service and standard compensation terms are set.
Review of price control and raises X to 4.5 and extends the scope of regulation.
- 1991 White Paper ends the duopoly policy.
Price controls is extended to international calls with X being correspondingly increased to 6.25.
Government sells second tranche of BT's shares
- 1992 Review of BT's price controls raises X from 6.25 to 7.5

Appendix 3: Restructuring of Telecommunications operators and the time frame (Selected countries)

Australia	Monopoly				Duopoly				Competition						
Chile	nationalization				Privatization				Open Market Foreign Participation						
									Fully Competition						
Malaysia	Monopoly				Corporatization				Privatization: 1st Share Sale						
									Competition						
Mexico	Monopoly				1st Phase of Reform: Privatized Telmex				2nd phase of reform: Further open up market competition						
New Zealand	Competition				Corporatization Split: TCNZ from Post Office				Privatization: 1st Share Sale & allow Foreign Investment						
United Kingdom	Corporatization Split: BT From Post Office & Core Through Duopoly				Competition with Interventionist Regulation				Privatization						
8 4	8 5	8 6	8 7	8 8	8 9	9 0	9 1	9 2	9 3	9 4	9 5	9 6	9 7	9 8	9 9

Source: Cave (1997), Galal & Nauriyal (1995), Hudson (1997), Kagami & Tsuji (1999), Smith & Staple (1994) Wellenius & Staple (1996) and WDR 98/99 (1999).

Appendix 4 : The functions of the Commission as in Communications and Multimedia Commission Act (CMCA)

- to advice the Minister on all matters concerning national policy objectives for communications and multimedia activities.
- To implement and enforce the provision of communications and multimedia laws;
- To regulate all matters relating to communications and multimedia activities not provided for the communications and multimedia laws; to consider and recommend reforms to the communications and multimedia laws
- To supervise and monitor the development of the communications and multimedia industry;
- To encourage and promote self-regulation in the communications and multimedia industry;
- To promote and maintain the integrity of all persons licensed or otherwise authorized under the communications and multimedia industry;
- To render assistance in any form to, and promote co-operation and co-ordination amongst, persons engaged in communications and multimedia activities; and
- To carry out any function under any written law as may be prescribed by the Minister by notification published in the Gazette.

Source: Communications and Multimedia Commission Act 1998.

Appendix 5: Main National Objectives in the Communications and Multimedia Act (CMA)1998

- to establish Malaysia as a global hub for communications and multimedia industry
- to build a new civil society
- to nurture local content and culture
- to give priority for the long-term benefits of the end user
- to promote consumer confidence in the industry
- to ensure access and equitable services
- to create a robust applications environment for end users
- to allocate resources efficiently
- to develop sector capabilities and to provide secure and safe networking

Appendix 6: Summary of institutional characteristics of telecommunications sector (selected countries)

Country	Public Telecommunication Operator (PTO) & regulatory agency (commission)	Legal regulatory framework	Competition policy	Ownership	Remarks
Australia	<p>Telstra</p> <p>AUSTEL (Australia Telecommunication Authority)</p> <p>- is an independent authority</p> <p>- it was established by <i>Telecommunications Act 1989</i>.</p> <p>Australian Communications Authority (ACA)</p> <p>-this institution is a competitive authority.</p> <p>Australian Competition and Consumer Commission (ACCC)</p>	<p><i>Telecommunication Act 1991</i></p> <p>-replaces <i>Telecommunication Act 1989</i></p> <p><i>Australia & Oversea Telecommunications Corporation Act 1991</i></p> <p><i>Telecommunications (Universal service levy) Act 1991</i></p> <p><i>Telecommunications (transitional Provisions & Consequential Amendments) Act 1991</i></p> <p><i>Telecommunication (Carrier licence Fees) Act 1991</i></p> <p>International code of practice</p> <p>National planning code.</p> <p><i>Telecommunications Act 1997</i></p>	<p>Duopoly in basic services until 1997 in local, long distances and international.</p> <p>Restriction on third party resale.</p> <p>Competition in public access cordless telephone service.</p> <p>A community service obligation (CSO) on Telstra to ensure universal service</p>	<p>Duopoly, Telecom / OTC (Telstra) and a privatized AUSSAT merged in 1991.</p> <p>3 public mobile telephone licenses were issues by 1992 to Telstra, Optus, Arena GSM Pty Ltd. (Includes UK-based Vodafone and AAP information Service of Australia)</p> <p>No legal foreign ownership restriction exists.</p>	<p>Tariff condition: CPI-X% for the main services (Connection, line rentals, local, trunk. International calls, leased line and mobile services)</p> <p>Review is conducted at the end of each price cap period.</p> <p>Information provided by regulated firm</p>
Chile	<p>CTC</p> <p>- no independent regulator.</p> <p>SUBTEL</p>	<p><i>The Electric Utilities Law</i> were enforced in Telecommunications sector:</p> <p>- any supplier interested in</p>	<p>CTC and ENTEL have lots of legal conflict. This led to April 1993 antitrust</p>	<p>Prior to 1960s, controlled by multinational company, International</p>	<p>Sale of state-owned enterprises, CTC and ENTEL through</p>

⁴⁵ SUBTEL, a part of Ministry of Transportation and Telecommunications which is responsible for telecommunications regulations, granting licenses, developing technical standard and overseeing the network operation.

	<p>(Ministry), Anti trust Commissions, courts and arbitration</p> <ul style="list-style-type: none"> - disputes between the firms and regulator over pricing are resolved through 3 members arbitration committee, one member selected by each party and the third by mutual agreement. - disputes over entry are resolved by the anti trust commissions, with appeal to the Supreme Court. - Disputes over interconnection are subject to binding arbitration. 	<p>establishing telecommunications service had to apply for government license.</p> <ul style="list-style-type: none"> - Tariff was set to allow 10% rate of return on fixed assets. <p><i>Telecommunications Law 1982</i></p> <ul style="list-style-type: none"> - classification of services and require that all operators must conform with operational standards - strengthen SUBTEL⁴⁵'s regulatory powers and penalties for contravene the law. Tariffs were gradually adjusted toward decreasing cross-subsidies. <p><i>Telecommunication Law 1987</i> includes procedures for setting monopoly tariffs</p>	<p>tribunal where Chile's telecom market were segmented and both CTC & ENTEL permitted each others' market and also open to other services providers.</p> <p>Supreme Court decision in 1993 also requires Telefonica de Espana to divest itself of its holding either in CTC or ENTEL</p> <p>Provision for an equal access (subscriber choose the long distance carrier for each call by dialing a carrier specific access code).</p> <p>Resale telephone line by subscribers was legal resulting more efficient allocation of available lines, reflected the real scarcity of service.</p>	<p>Telephone & Telegraph Corporation (ITT).</p> <p>1967-Partial government take over</p> <p>1971-Government intervention</p> <p>1974-Nationalization</p> <p>Privatization in 1988-90</p> <p>CTC is the dominant carrier in local service market.</p> <p>ENTEL is the main domestic and international long distance service provider.</p> <p>Both are state-owned company.</p> <p>operators have been granted duplicated parts of CTC's service area.</p>	<p>Santiago Stock Exchange and private sales to Chilean private pension funds, other foreign investors and company's employees.</p> <p>Network expansions accelerated prior to intervention and nationalization</p> <p>Adopted Bench Mark regulation (set tariff base on rate on return of efficient firm using the capital asset pricing model⁴⁶)</p> <p>Setting tariff framework for a team of 5 years.</p> <p>Share of private sector - 100%</p> <p>regulatory reform - 1987</p>
Mexico	<p>Telmex</p> <p>Commission Federal de Telecomunicaciones (Cofetel)</p>	<p><i>Law of General Means of Communication 1938</i> is the basic legal instrument.</p> <p>Revised regulatory</p>	<p>Telmex:</p> <ul style="list-style-type: none"> - monopoly basic service network - set 	<p>Telmex was privatized in 1990 with the controlling consortium was led by Grupo Carso,</p>	<p>Information provided by regulated firm</p> <p>tariffs had been adjusted to reflect the</p>

⁴⁶ See Galal & Nauriyal (1995) p.13, Box 1 for more detail.

	<p>- independent regulator</p> <p>- this institution is a competitive authority.</p> <p>Secretaria (ministry) de Comunicaciones y Transportes (SCT)</p> <p>-Ministry is one of a regulatory institution</p>	<p>framework in three direction:</p> <ol style="list-style-type: none"> 1. privatized the ministry of communications which previously is a regulatory and a service provider 2. Revise Telmex operation 3. Publish the condition for competition under the Law of General Means. <p>- government specify the competition condition in the regulation of the Law of General Means</p>	<p>telephone tariffs subject to price-cap regulation until 1996.</p> <p>- has also been granted a national cellular concession.</p> <p>There are regional duopoly in the mobile cellular service whereby a Telmex subsidiary competes with a new entrant in a region.</p>	<p>Douthwestern Bell and France Telecom</p> <p>Telmex is the merging of two competing telephone companies.</p>	<p>cost of providing each service especially reduce the international long distance prices which is well above international norms.</p> <p>Adopted price cap regulation</p> <p>Tariff review every 4 years after 1998</p> <p>Share of private sector - 100%</p> <p>regulatory reform - 1990</p>
New Zealand	<p>TCNZ</p> <p>The Ministry of Commerce</p> <ul style="list-style-type: none"> - administers the relevant laws and regulations - Ministry is one of a regulatory institution <p>Prior to April 1 1987, Post Office is a statutory monopoly.</p> <p>Commerce Commission</p> <p>-this institution is a competitive authority.</p>	<p><i>Commerce Act 1986</i> (antitrust Law)</p> <p><i>Fair Trading Act 1986</i></p> <ul style="list-style-type: none"> - govern competitive and fair trading behavior in telecommunication services <p><i>Radiocommunication Act 1989</i></p> <ul style="list-style-type: none"> - cover frequency and use <p><i>Telecommunication Act 1987</i></p> <ul style="list-style-type: none"> - liberalize CPE & VAS <p><i>Telecommunications Amendment Act 1988</i></p>	<p>Competition permitted in all services provision. No market restrictions.</p> <p>TCNZ published the quality of service indicator.</p> <p>Two competitors:</p> <ul style="list-style-type: none"> -Clear (long distance) -BellSouth New Zealand (mobile) <p>Clear emerged as a leading competitor for network</p>	<p>1960-1970s, generally poor state performance in telecommunication diverse services</p> <p>TCNZ was sold in 12 September 1990 to a consortium of Fay Richwhite and Freightways of New Zealand, Bell Atlantic and Ameritech for US\$2.4 billion, under the condition</p>	<p>Information provided by regulated firm</p>

⁴⁷ TCNZ needs to disclose relevant information (prices, term and conditions of certain specific services) and also publish financial accounts with the purpose to provide actual competitors information in a competitive market. Moreover, operator who provide international service in New Zealand are required to uniform their accounting and to ensure that the overseas operator with monopoly privileges in their own domestic countries do not against another to New Zealand carrier and customers.

		<p>(effective April 1, 1991)</p> <ul style="list-style-type: none"> - removed the TCNZ monopoly status for the provision of public switched network services <p><i>Telecommunications Amendment Act 1990</i></p> <ul style="list-style-type: none"> - liberalized the provision of telecommunications services and facilitate competition. <p><i>Telecommunication (international services) Regulations 1989</i></p> <p><i>Telecommunications (Disclosure) Regulation 1990⁴⁷</i></p>	services.	<p>that the American Partners reduce their combined share of TCNZ to 49.9% in 3 years.</p> <p>The government retain a golden share (kiwi)</p> <p>On 1 April 1993, TCNZ restructured itself, with its operating subsidiary becoming Telecom New Zealand Limited</p>	
United Kingdom	<p>PTO: British Telecom</p> <p>Regulator: OFTEL (Office of Telecommunication)</p> <ul style="list-style-type: none"> - an independent non ministerial regulatory body and establish in 1984 - In 1997, OFTEL was abolished due to normalization. - DGT (Director General of Telecoms) together with 	<p><i>Telecommunication Act 1981</i> (split telecommunication for post office and allow government to establish network competition)</p> <p><i>Telecommunication Act 1984</i></p> <ul style="list-style-type: none"> - led to privatization of British Telecom (BT) - setting up OFTEL <p><i>The Competition and Service (Utilities) Act 1992</i></p> <ul style="list-style-type: none"> - Director general is given explicit powers to set standards of service for BT and to set compensation if fail to meet the standards set. 	<p>1984-91, duopoly in fixed-link services. Subsequently opened to competition in all services except international network.</p> <p>International calls were incorporated in 1991.</p> <p>Mercury is the single entrant to compete with incumbent operator (7 years undisturbed by further entry). In return, Mercury follow BT's price</p>	<p>publicly owned until 1980, then liberalize telecommunications market to private sector competitors</p> <p>privatization BT in 1984.</p> <p>1991-97 is a transition period</p> <ul style="list-style-type: none"> - regulatory intervention - review duopoly policy license entrant in local and long distance markets on minimal conditions. 	<p>Since 1984-present, main regulatory issues including RPI-X with a specific X written into license. The price control regulation become tighter over time</p> <p>OFTEL does not want to promote local competition through unbundling and resale.</p> <p>Interconnection charges:</p> <ul style="list-style-type: none"> - base on BT's opportunity

	<p>DTI (Department of Trade and Industry) responsible for implementing the regulatory regime prescribed in 1984 Act.</p> <p>DTI responsible for enforcing licensing (price control) regulation of the radio spectrum.</p> <p>- OFTEL responsible for monitoring and enforcing license conditions, investigate complaints and keeping the sector under review generally.</p>		<p>rigidity.</p> <p>Mercury: - 2nd network operator</p> <ul style="list-style-type: none"> - providing local fibre-optic network as well as long distance & international network. - Duopoly policy expired on 1991 - Low penetration to local market and low profit. (Customers prefer BT for originating and terminating calls) <p>Liberalization of CPE, mobile, VAS, data and resale market between 1985-1990</p>	<p>- Government sold 51% of shares to public by way of issuing share. The government sold further 27% of BT's shares in 1991 and remaining 22% in 1993 to the public.</p> <p>- Government retained a golden share to entitles it to attend and speak at shareholders meeting and appoint two directors.</p>	<p>cost</p> <p>- reflect loss in revenue by BT when loss a customer to Mercury.</p> <p>Access charge = long run incremental cost + common cost</p>
United State	<p>PTO: AT&T</p> <p>Regulator: Federal Communication s Commission (FCC)</p> <ul style="list-style-type: none"> - an independent regulator - competition authority - regulates 	<p><i>Communications Act 1934</i></p> <p><i>Communication Act 1996</i></p>	<p>Regulator is an independent entity</p> <p>Competition is allowed for all services with a few restrictions</p> <p>There is no federal segmentation of markets or</p>	<p>Domestic long distance and international voice service are provided by AT&T, MCI, Sprint and others.</p> <p>1984, AT&T broken up to avoid</p>	<p>Since 1989, AT&T is subject to price cap regulation.</p> <p>Interconnecti on agreement between entrant and incumbent :</p> <ul style="list-style-type: none"> - Symmetrical

⁴⁸ The seven divested BOCs or Baby Bells are NYNEX, Bell Atlantic, Bell South, Southwestern Bell Corporation, Pacific Telesis, U.S. West and Ameritech. They were allowed to market, but restricted to local telephone service.

	interstate and international communication as well as radio frequency spectrum - state public utilities commission (PUC) regulate intrastate communication		carriers restrictions except for Regional Bell Operating Companies (RBOCS) ⁴⁸ 3 patterns to enter local call market: <i>facilities based entry</i> - involve social cost <i>resale</i> - buy local services at discount price from ILECs and resell serviced to its own customers (as a compensation to the ILEC opportunity cost) <i>unbundling</i> (combination of facilities based and resale entries) - entrant lease ILEC's wire, but it can use its own switches. ILEC still control over maintaining the unbundled elements	dominant firm in the sector.	access charges with other telecommunication carriers, with the purpose to eliminate incumbent's bargaining power. FCC has designed an incentive scheme for regulated firms a choice between remain under cost plus regime or switching to price cap for local exchange company.
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Source: adopted from Boylaud and Nicoletti (2000) p.50-52, OECD Communications Outlook 1999, Hudson (1997), Wellenius and Stern (1989)

Appendix 7: Malaysia Regulatory Institution, Mechanisms and other variables of Telecommunications sector.

Variable	Pre-privatization (1957-1987)	Corporatization (1987-1990)	Post privatization Era I (1991-1997)	Post privatization Era II (1998-present)
Regulatory authority/ agency	<p>JTM (Department of Telecommunications) was responsible solely for regulatory functions</p> <p>Minister has the power to make regulation to control any telecommunications equipment besides having power to grant licences. (Telecommunications Act 1950, S3 (1))</p>	<ul style="list-style-type: none"> JTM <ul style="list-style-type: none"> the government regulatory body of the industry monitoring and enforcing licences granted by METP to STM (Syarikat Telekom Malaysia) no longer undertaken operating function of the telecommunications industry, instead it had been transferred to STM. STM <ul style="list-style-type: none"> is a main operator, focuses commercially including marketing and infrastructure and customer orientation as well. It was granted 20 years licensed issue from 1987 onwards partially privatized in 1990 by sales of new shares (25%) and 	<ul style="list-style-type: none"> JTM <ul style="list-style-type: none"> established standards, regulate radio spectrum and promote R&D, protect consumer interest, encourage quality of services and represent Malaysia in international telecommunications organization. <p>Ministry of Energy, Telecommunications and Posts (METP) has the power to make regulation for wider aspect. [S7(1)]</p>	<p>Malaysian Communications and Multimedia Commission) MCMC is the regulator. It exercise its power granted under the Act 1998, which is consistent with the determination [S10(4)]</p> <p>Ministry of Energy, Communications and Multimedia (MECM)</p> <ul style="list-style-type: none"> may issue directions which is consistent to the Commission with the object form time to time of the exercise of the Commission's power and the performance of the Commission's duties under the Act [S7(1) & (2)]. Make regulation to be published under the recommendation of the Commission for several aspects such as the procedures of appeal tribunal [S16(1)]

		listed on K.L.S.E on November 7, 1990.		
<p>The legal status of regulation: Rules, Laws or regulations</p>	<p><i>Telecommunications Act 1950</i></p> <ul style="list-style-type: none"> - grants the government to provide all domestic and international telecommunications service either by itself or license to others to do so. - To enable setting up a regulatory body <p><i>Telecommunications Services (successor company) Act 1985</i></p> <ul style="list-style-type: none"> - Allow the transfer of telecommunications operating assets and liabilities of telecommunications services to STM besides the provision relating to staff from JTM to STM <p><i>Telecommunications (Amendments) Act 1984</i></p> <ul style="list-style-type: none"> - Minister has the power to make regulation for fee, rent or royalty payable on the license. <p><i>Telecommunications (Amendments) Act 1985</i></p> <ul style="list-style-type: none"> - reformulated JTM as the government regulatory authority. - Allow Minister to appoint Director General of telecommunications for the purpose of performing the duties assigned to him under the Act. [S3(B)] <p><i>Pension Act 1980 and Pension</i></p>		<p><i>Telecommunications (Amendment) Act 1991</i></p> <p><i>Telecommunications (Amendment) Act 1993</i></p>	<p><i>Communications and Multimedia Act 1998</i></p> <ul style="list-style-type: none"> - repeals the <i>Telecommunications Act 1950</i> and the <i>Broadcasting Act 1988</i> based on the principles of transparency and less regulation and self-regulation. - address the industry convergence legislation

	<i>(Amendment) Act 1985</i> - Protect the benefits of staff either to retire or join the new operating company, STM			
<u>Restructuring of Telecommunications industry</u> Tariff/ tariff review	Tariff for basic service is base on cost-plus pricing i.e. average cost plus a profit mark-up Only once tariff rebalancing was done in 1985. Need to submit a memorandum to the minister for any change in existing rates prescribed in S. 7	No regular tariff review.	Price cap with no regular fixed tariff review. After a long regulatory lag of 11 years, another tariff review was done in 1996.	A review rules and regulations conducted by the Commission every 3 years. Ministry may set rates for any services provided by a provider as public interest, under the Commission recommendation In year 2000, annual mobile tariff to government had been abolished, whereas the monthly tariff to operators have been decreased from RM 60 to a flexible range within RM 10 and RM45.
USP and USP Fund	Government involved directly in fulfilling the social obligation. There is Telecommunications Fund which was control by Director General.		USP burden was borne solely by TMB (Telekom Malaysia Berhad)	Each company has obligation to provide services to less profitable areas. USP Fund was established to cover excessive cost of serving suburban areas
Penalty	For any offence contrary to regulation will be liable to fine in smaller amount (not exceeding 500 ringgit) [s.21] Act 1950. Anyone who has intention to damage telecommunications plant will be fined not exceeding 2 thousand or imprisonment for up to 3 years or both [s.25] Minister may revoke any licence granted due to the break of any default of payment [s.8]		Penalty for any breach of licence shall be liable for a bigger amount of fine (not exceeding one hundred thousand ringgit) [S.21] Act 1991. For intentional damage any telecommunications plant, a fine of not exceeding 20 thousand ringgit or imprisonment up to 3 years or both [S.25]	

Competition and market liberalization	Monopoly until 1987 No experience dealing with competition	Beginning of competition: Payphone: 1988 Cellular : 1989	Acceleration of competition since 1994.	Malaysia has deregulated all aspect of services very competitively such as network for basic services, terminal equipment and leased circuit
	No experience operating in a private sector environment and no system in place for private sector operation.	Three major players dominate in payphone market	Competition focus, based on segmentation: Local telephony : May 1994 The government licensed four companies (Celcom, Maxis, DiGi Telecom and time Telecom) to compete with incumbent TMB in the local telephony market.	Equal access in 1999 Beginning of competition: Domestic long-distance telephony: January 1999 International telephony: January 1999.
Market structure			Competition is emerging in facilities-based services, cellular and paging services. The degree of competition differs with segments of the market.	There are 5 private companies, namely Technology Resources Industries (TRI), Binariang Sdn Bhd (Maxis), DiGi Telecommu-nications Sdn Bhd, Time Wireless Sdn Bhd and Mobikom Sdn Bhd. All of them are given international gateway licenses, fixed-line and mobile licenses. The incumbent has dominant
			Analogue mobile telephone services is quite laid out nationally. ATUR 450 and ART 900 have approached maturity in service coverage exceeded 80% coverage. For digital services,	

			<p>GSM 900 is concentrated in town centres. Its service coverage for GSM 900 has achieving 50% coverage (JTM, 1997).</p> <p>Maxis also has licenses to provide Malaysia's geostationary satellite, MEASAT, which was launched in late 1995</p>	<p>over the fixed exchange network. It is challenged by 5 players which offering fiber-optic networks.</p> <p>The cellular market is oligopolistic.</p> <p>Both Maxis and Celcom have almost equal share control over the mobile phone market i.e. 30% and over 30% respectively by the mid of 2000. Meanwhile, DiGi has its niche market in prepaid mobile services.</p> <p>Paging services has been faded</p>
Interconnection			<p>International Agreement was signed in 1995.</p> <p>National Telecommunications Policy 1992 was signed to stipulate all operators of fixed and mobile telecommunications services provide interconnectivity to each other.</p>	<p>cost-based price regulation is applied to all well established interconnection services subject to interconnection uses the bottleneck facilities.</p> <p>For fixe line services, interconnection charges are based on fully allocated cost approach, whereas prices for mobile services are set closer to long run incremental costs.</p>
Market entry				<p>There is no clearly defined foreign restrictions except that foreign ownership in TMB is limited to 33%.</p> <p>At the end of February 1998, government upped foreign equity in local telecommunications companies from 300% to 49%.</p>
Licence				<p>Anyone may write to Commission to</p>

				<p>apply for an individual licence. For those who intend to operate under a class licence may register with the Commission by submitting a registration notice. On the contrary, Minister may declare cancellation of registration according to the recommendation of the Commission [S.47]</p> <p>Minister may declare cancellation of an individual licence under S.37</p> <p>circumstances. The effect is licensee cease to provide the service granted immediately. For those who commit this offence is liable to a fine not exceeding five hundred ringgit or imprisonment for not exceeding five years or both, [S.41(4)]</p>
Appeal Tribunal				<p>Minister may establish an Appeal tribunal to assist the performance of the Commission's function for the public interest.</p> <p>Appeal Tribunal may review any matter relating to the decision of the Commission except the determination by the Commission (S.18)</p> <p>The decision of Appeal tribunal is decided on a majority vote of the members (Chairman and at least two others members) [S.23]</p>

Appendix 8: Comparison of Price Cap and Rate-Of Return Regulation.

HIGH POWER INCENTIVE SCHEME RICE CAPs Regulation (FIXED PRICE)	LOW POWER INCENTIVE SCHEME Rate-of- Return Regulation (COST-PLUS)
<p>Advantages:</p> <ol style="list-style-type: none"> 1. The government bears no risk in price that it will pay. 2. The firm has incentive to minimize total cost. 3. It reduces both the workload and political burdens on regulators. Once the detail of the caps (what services are included in the basket, how large is the X factor should be, how frequent the review should be, whether different caps should be given to different basket and etc) are solved, the tariff issues has been taken out of political arena, at least until the next review period. <p>Disadvantages:</p> <ol style="list-style-type: none"> 1. Costly to supply quality <ul style="list-style-type: none"> • because provision of quality would be borne entirely by the firm. Thus, firm ignores quality matters if it is not specified in the regulatory contract 2. Regulatory commitment & regulatory lag: <ul style="list-style-type: none"> • the length of regulatory contract : may incur before the expiration of current regulatory contract. Regulator has power to fixe the regulated firm's price for predetermined period and then subsequent revising this price. At each review, regulator must ensure that fixed price is high enough in the regulatory process until the next review.⁴⁹ • Renegotiation are proposed when the firm finds that the initial contract is unprofitable and they face 'soft budget constraint' • However, renegotiation may further worsen ratchet effect i.e. regulatory body may expects the firm to perform better at the next review when the regulated firm manage to reduce its cost currently. 	<p>Disadvantages :</p> <ol style="list-style-type: none"> 1. The government is uncertain about the price in line with cost. The firm has no incentive to undertake any cost-reducing measures. 2. The firm may inflate cost and involve in cross-subsidization by shifting cost from unregulated to regulated services. <p>Advantages:</p> <ol style="list-style-type: none"> 1. cheap to supply quality <ul style="list-style-type: none"> • this adoption is suitable if regulator is unable to monitor quality standards. 2. Regulatory commitment & regulatory lag: <ul style="list-style-type: none"> • The firm's cost and profitability are examined by the regulator each time the firm files a new set of prices (continual regulatory lag). • If the firm is risk averse, then the insurance properties of short lags can track cost better. Therefore better insurance against cost movements is obtained under rate-of-return regulation.

⁴⁹ If the firm's costs are not observable, then the firm has an incentive to artificially increase its costs to a review to obtain greater advantages.

<ul style="list-style-type: none"> • In a nutshell, the contract renegotiation will decrease the firm's incentive in its cost-reducing effort and lead to inefficiency. <p>3. regulatory capturing :</p> <ul style="list-style-type: none"> • high power incentive scheme is associated with high rents. Intermediaries may be captured by interest group because they are uncertain about the policy ranking that favors interest group. They are free-riders and have no incentive to get information about making policy. Thus, need informational intermediaries as delegate supervisor to share information and to suggest policy that reduce the likelihood of capture. • Any government decisions may affect consumer welfare. If government knows that the firm has a low cost, regulator would abolish the potential rent. However, there's always asymmetry information occurrence whereby consumers (taxpayers) have to pay higher tax for services when a firm gains from rent. Government may pay more than the cost for the project. <p>4. The degree of cost passthrough :</p> <ul style="list-style-type: none"> • A higher degree of risk aversion for a firm implied a greater degree of cost passthrough than should be allowed. • Cost passthrough providing incentives for cost reduction. 	<p>3. Regulatory capturing:</p> <ul style="list-style-type: none"> • less sensitive to regulatory capturing, in other words, regulatory decisions have lower impact on the firm's welfare as the use of regulator's private information is the least. • advisable to use lower power of incentives schemes when regulatory capture is serious. <p>4. The degree of cost passthrough:</p> <ul style="list-style-type: none"> • The firm chooses after observing the cost function to get the optimal cost passthrough. Therefore, the firm faces no risk and thus the degree of risk aversion was irrelevant.
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